On 2-3 November 2023, De Nederlandsche Bank organized its 26th Annual Research Conference. The conference theme was “Challenges for monetary policy during normalization”. The conference featured two keynote speeches by Stephen Cecchetti and Annette Vissing-Jørgensen, a policy panel with Gaston Gelos, Huw Pill, and Stephen Cecchetti, and ten high-quality research papers.

Klaas Knot opens the conference with an insightful speech that sets the stage for the upcoming discussions. He recalls the monetary policy challenges of the last decade and elaborates on how unconventional monetary policies helped central banks pursue their price stability mandates in light of the effective lower bound (ELB) on short-term nominal interest rates. While he regards these measures as broadly successful, he notes that the deployment of multiple policy instruments and the sequencing for their phasing-out has obstructed the ECB in “turning the ship" quickly in response to the large inflationary shocks seen in the last two years. Looking forward, Knot says that restrictive monetary policies will likely remain needed for some time to bring inflation back to target. In the meantime, the balance sheet is declining at a steady and measurable pace. In this context, Knot highlights that “structural changes in financial markets, including a higher demand for liquidity, will call for a larger central bank balance sheet in the future”. In his view, refinancing operations represent the most efficient tool to provide such a level of reserves.

The first session focuses on central bank asset purchase programs. **Marco Bernardini (Banca d’Italia)** presents an empirical study on the joint impact of announcement and implementation effects of large-scale asset purchases by the Eurosystem. He finds that announcement shocks exert larger and more persistent effects than implementation shocks on financial conditions and inflation expectations, while implementation modalities can matter for amplifying the purchase effect. Both implementation flows and announcements have a sizeable endogenous component, driven by macro and financial shocks. **Richard Harrison (Bank of England)** examines optimal monetary policy in a New Keynesian model with a portfolio balance channel, showing that central bank purchases (QE) reduce portfolio returns, thereby increasing aggregate demand and inflation. The effects of QE and QT might be asymmetric due to differences in pace (QE adoption is rapid while QT is more gradual) and the policy mix in specific interest rate environments (the policy rate and the balance sheet are substitutes when the policy rate hits the ELB, while the policy rate is an ‘active instrument’ away from the ELB).

In his keynote address, **Stephen Cecchetti (Brandeis International Business School)** talks about the increasing relevance of central banks in stabilizing financial markets. He distinguishes stabilization tools reflecting the central bank’s role as lender of last resort (LOLR) and market maker of last resort (MMLR). In addition, the enhanced LOLR implies central bank lending to a broader set of counterparties against a wider range of collateral. The presentation surveys these stabilization tools used in several advanced economies and discusses challenges and trade-offs for their implementation.

The second session discusses the bank-based monetary policy transmission in the euro area and factors that may influence it. **Stephen Kho (ECB)** focuses on the role of heterogeneity in the degree of banking sector concentration for the monetary policy transmission in the euro area, with implications for banking sector profitability and macro reactions. Specifically, he shows that more concentrated domestic banking sectors pass on unexpected monetary tightening (easing) more slowly (quickly) than less concentrated ones. **Daniel Fricke (Deutsche Bundesbank)** shows that large excess reserves affect monetary policy transmission by increasing the net worth of reserve-rich banks when the interest rate paid on excess reserves rises. Focusing on the ECB’s 2022 hiking cycle, he finds that banks with larger excess reserves display a relative increase in credit supply following the rate hike. The effect is stronger for smaller banks and is mainly directed towards smaller firms and firms with higher credit quality.

The third session covers central bank balance sheet normalization. **Pierpaolo Benigno (University of Bern)** proposes a new framework to study monetary policy normalization when exiting a liquidity trap. Based on his model, the optimal combination of reserves and interest rate policy requires an increase in reserves sometime after the policy rate hits the ELB. Removal of accommodation requires QT to

start before the liftoff of the policy rate, while the liquidity withdrawal takes place at a slow pace relative to the policy rate normalization. **Pascal Meichtry (Banque de France)** develops a borrower-saver model to study the macroeconomic implications of doing QE and unwinding it, while highlighting the role of an occasionally binding zero lower bound (ZLB) in determining an asymmetry between the effects of QE and QT. When the economy is close to or at ZLB, raising the nominal interest rate before unwinding QE minimizes economic costs of monetary policy normalization. Household heterogeneity, in combination with state dependency, amplifies the revealed asymmetry.

The second day starts with a theoretical session on monetary policy implementation in an ample reserves environment. **Kyungmin Kim (Federal Reserve Board)** presents a conceptual framework to study reserves demand, its driving factors, and an optimal level of central bank reserve supply under different operational frameworks. The paper finds that the best policy implementation outcomes are realized when reserves are in between scarce and abundant. This outcome is consistent with the FOMC’s 2019 announcement to implement monetary policy in a supply-driven floor regime with ample reserves. **Olivier Loisel (CREST, ENSAE Paris)** uses a model that qualitatively accounts for key features of U.S. inflation and money market rates during ZLB episodes and explores the implications of the model for the normalization of monetary policy and its operational framework (floor system). In particular, current and expected future policy rate hikes and balance-sheet contractions are always deflationary in his model, thus ruling out the Neo-Fisherian effects.

In her keynote speech, **Annette Vissing-Jørgensen (Federal Reserve Board)** discusses factors relevant to setting central bank balance sheet size and composition above the ELB, focusing on the role of convenience yields. As reserves provide a liquid and safe asset, a central bank may want to supply enough to set their convenience yield of zero. However, if reserves are supplied via bond purchases, the balance sheet size equalizes convenience yields on reserves and bonds and is smaller. The estimation of convenience-maximizing balance sheet size for the U.S. and the euro area highlights constraints on which assets central banks can hold without affecting credit allocation or fiscal policy.

The second session of the day focuses on bank funding and monetary policy. **Marco Cipriani (New York Fed)** identifies the drivers of the Fed’s ON RRP take-up. By exploiting a temporary change in the computation of banks’ Supplementary Leverage Ratio (SLR), he shows that banks’ balance sheet costs force them to push deposits towards and reduce overnight borrowing from MMFs, leading to higher MMF investment at the ON RRP. Monetary policy tightening and T-bill scarcity also contribute to the increase in ON RRP usage. **Erica Xuewei Jiang (University of Southern California)** studies the effect of monetary policy tightening on the value of U.S. bank assets and bank stability during 2022-23. The model shows that rising interest rates can lead to self-fulfilling solvency bank runs even when banks’ assets are fully liquid. Banks with asset losses, low capital, and high uninsured leverage are most fragile. A case study of Silicon Valley Bank (SVB) confirms this, as losses and uninsured leverage provided incentives for SVB's uninsured depositors’ run. Bank fragility is thus a reason for concern.

The policy panel with **Gaston Gelos (Bank for International Settlements), Huw Pill (Banks of England),** and **Stephen Cecchetti**, moderated by **Aerdt Houben (DNB)**, features a lively discussion on the challenges and trade-offs between monetary policy and financial stability posed by monetary policy normalization in the environment of ample reserves. The panelists talk about the importance of well-calibrated macroprudential regulation and building resilience (higher capital buffers) as a first line of defense to address systemic risk and financial vulnerabilities. At the same time, they acknowledge the need for central bank interventions to provide an effective backstop in stress episodes and restore market functioning. Furthermore, the panelists emphasize the role of central bank communication in explaining different policies (separation principle), especially during stress events.